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ABSTRACT

To determine the crucial factors affecting student performance on the Scholastic Aptitude Test (SAT) in Manatee County (Florida) public schools, researchers sent questionnaires to students who had completed the SAT in the years 1977 through 1980. Of 887 students sent the questionnaire, 188 returned responses in time for tabulation. This small sample appeared to be skewed toward more successful students. The questionnaire responses, when interpreted in the light of information from application forms filled out by students at the time the SATs were taken, and when viewed in terms of the scores obtained by students on the tests, led to the identification of several conditions having a major effect on test success: the number of math, science, and English courses taken; personal and parental expectations of academic performance; math and English course content; personal motivation to achieve scholastic success and to score well on college entrance examinations; vocabulary study in English; and college preparatory course work. Conditions judged as having little effect were writing assignments and literature study in English; the number of social studies and foreign language courses taken; and study of test-taking strategies in school. (Author/PGD)

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RESEARCH BULLETIN



A STUDY OF THE FACTORS AND CONDITIONS RELATED TO
CHANGING S.A.T. SCORES IN A MID-SIZED FLORIDA
SCHOOL DISTRICT

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Florida Educational
Research and Development Council, Inc.

Research Bulletin

A Study of the Factor and Conditions Related to Changing
S.A.T. Scores in a Mid-Sized Florida School District

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TESTING AND TEST SCORES CONTINUE TO BE A MAJOR CONCERN ON THE PART OF EDUCATORS AS WELL AS THE GENERAL PUBLIC. EVIDENCE OF ACHIEVEMENT, AND PERFORMANCE ON THE PART OF LEARNERS IS IN DEMAND IN MANY STATES AS ONE MEASURE OF A GIVEN SCHOOL DISTRICT'S EFFECTIVENESS.

THE AUTHOR HAS DONE A COMMENDABLE JOB IN RESEARCHING THE LITERATURE AND EXAMINING THE S.A.T. SCORE STATUS IN ONE SUCH SCHOOL DISTRICT. THE READER WILL NOT ONLY BE INTERESTED IN THE CONCLUSIONS REACHED, BUT IN THE METHODOLOGY EMPLOYED IN THE PROCESS. ANY DISTRICT SO INCLINED CAN REPLICATE THIS STUDY FOR ITS OWN PURPOSE, AND IS INVITED TO IMPROVE UPON IT.

F.E.R.D.C. WOULD BE INTERESTED IN OTHER LOCAL STUDIES ALONG THESE LINES. OUR MISSION IS TO STIMULATE INVESTIGATION OF THE UNEXPLAINED, AND TO MAKE THE FINDINGS AVAILABLE.

WE ENCOURAGE THE COLLABORATION BETWEEN A UNIVERSITY AND A SCHOOL DISTRICT WHICH IS EXEMPLIFIED IN THIS BULLETIN BY PUBLIC SCHOOL PERSONNEL IN MANATEE COUNTY AND A UNIVERSITY PROFESSOR AT THE UNIVERSITY OF SOUTH FLORIDA.

CHARLIE T. COUNCIL
EXECUTIVE SECRETARY

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INTRODUCTION

Purpose of the Study

In Manatee County, a mid-sized Florida school district, Scholastic Aptitude Test (SAT) scores for a four-year period were observed. They rose substantially in 1978 and 1979, and then declined in 1980--while remaining above both Florida and national score averages. Settling to a position of nine points above the national average, score changes fluctuated between 30 and 56 points per year.

Given the fact of changing SAT scores in Manatee County, the purpose of this study was to examine the relationships of identified factors and conditions with the score changes. In an attempt to explore the relevance of such factors and conditions, the study addresses the following questions:

1. What discoveries can be made through a close examination of existing and gathered data on the SAT test-taking populations of 1977 through 1980?
2. Are the changes in scores directly and solely attributable to changes in the test-taking populations?
3. Are there relationships between the score changes and factors of curriculum emphasis or uniqueness in the district?
4. Are there relationships between the score changes and the scope, content, and methodology of courses and programs in the district's high schools?

Background and Significance of the Study

Accompanying the national score decline has been much hypothesizing by would-be critics representing education or the public. Only recently, however, have substantive studies of the SAT pattern and its impact been published.

In 1977, a blue-ribbon panel commissioned by the College Board (CEEB) and the Educational Testing Service (ETS), produced On Further Examination, a report on the SAT score decline. Piggybacking an ETS researcher's study prepared for the CEEB/ETS report was a work published by the National Association of Secondary School Principals, entitled Guidelines for Improving SAT Scores.

Even more recently, in 1980, a pair of Harvard researchers compiled a study of earlier research indicating the influence of student preparation for the SAT. Studies by both Ralph Nader and the National Education Association (NEA) have supported the premise that coaching can have some positive effect on SAT scores.

Given, then, much attention to the fact of declining SAT scores and accompanying "causes" and proposed "cures," this study was designed to isolate factors and conditions peculiar to a mid-sized Florida school district and its pattern of SAT score changes during a four-year period. If discoveries could be made about test-takers before, during, and after the SAT experience--and if school-related and non-school-related factors could be shown to have had a relationship with changing SAT scores, then

both the district and the readers of this study would have been served well. The district could learn why those score changes occurred. Others could evaluate and apply what the district had learned.

Limitations of the Study

The findings and conclusions of this study are limited by several conditions which warrant further explication. There was no attempt to accommodate a comparative research design by looking beyond the bounds of Manatee County for parallel districts with similar patterns of score changes. Thus, the application of findings may be limited to those who can find themselves somewhere in the district's composite picture.

Attempts were made to use data gathered both before and after the SAT tests; responses to two questionnaires were examined. The first, the Student Descriptive Questionnaire (SDQ), was completed by students when they applied to take the SAT. It was available for the years ending 1977 through 1979 in a computer tape format, and for 1978-80 in print format. The second, an SAT follow-up questionnaire, was administered to former test-takers from 1977-80 who 1) could be identified, and 2) took the test in October, November or December. Inasmuch as there was not a complete data overlap, some gaps were inevitable, and numbers of respondents to the two questionnaires do not closely coincide.

Others' research concerning family income levels suggested a need for carefully examining that realm of variables and its relationship to SAT scores. The construction of the SDQ questions about income, however, prevented such an inquiry with available data processing equipment and programs. Because the SDQ used a different income scale each year, there was the complicated task of dealing with varying numbers of responses with different values. Therefore, an important set of questions was left largely unexplored.

Finally, it should be mentioned that responses to the SAT follow-up questionnaire are still being returned. Thus, those data were the last to be tabulated, and no formal tests of statistical significance were conducted. The follow-up questionnaire results should, therefore, be recognized as raw data. One should be particularly cautious about making inferences based on those responses.

A REVIEW OF LITERATURE

The fact of a national decline in SAT scores is irrefutable. Scores began dropping in 1963 and have continued to do so for 18 years. Many have speculated about the reasons for the decline; others have made scholarly attempts to ascertain why it has happened. As a result, a two-way crossfire has occurred between schools and society. Venable (41) says that the public "has tended to place blame entirely on the schools," while educators have maintained "that the population of test-takers has changed."

Significant Studies

In the past four years, five major studies have addressed the facts of the decline. Each has confirmed the notions of some readers and has raised the ire of others. Partly because the score decline itself has been newsworthy, so has been the publication of each of the studies. Consequently, all of the studies have evoked some published response.

The first, in 1977, was the CEEB/ETS-commissioned work entitled On Further Examination. In that study, Wirtz and others (44) indicated that most of the score decline between 1963-70 could be attributed to "compositional" changes in the test-taking populations, whereas the decline from 1970 on could be linked to more "pervasive" changes in schools and society. Wirtz emphasized that no single cause for the latter decline could be found, and identified a broad range of factors, many of which could not be measured quantitatively.

In that the Wirtz study cited such nebulous school changes as a "reduced emphasis" on verbal and mathematics competence, and diminished "seriousness of purpose" about schooling, it was inevitable that others would respond. Judy (23) reacted with a statement that the study "is a policy paper, an attempt to shape the public schools in directions recommended by ETS and CEEB. As such, its contents should be cause for alarm for teachers, for school administrators, and for parents." Applebee (2) issued a softer warning, indicating that because the study touched on issues relevant to the teaching of English, teachers should read it carefully.

On Further Examination's listing of societal changes prompted little reaction. Perhaps such factors as the impact of television, the changing role of the family, a period of national disruption, and diminished student motivation were less refutable. McPherson (27) concluded that the study found "that the causes for the decline are not simple, and neither are the solutions."

In 1978, Thomson and DeLeonibus (38) used an ETS study's listing of schools with stable and rising SAT scores to survey principals about characteristics of those schools. Their investigation resulted in a work entitled Guidelines for Improving SAT Scores, published by the National Association of Secondary School Principals (NASSP).

Guidelines emphasized "academic rigor" as an approach for improving scores, making recommendations regarding English and mathematics curricula, guidance programs, and grouping practices, among others. The work was immediately criticized for what Black (4) called its "irresponsible" research approach. Black added, "I cannot stand quietly by while an informal opinion survey of 34 human beings, an inquiry without any of the safeguards of modern-day survey research, affects educational policies and practices." Thomson (37) countered with, "Professional viewpoints provide valuable information....They can be more valid than are quantitative data that measure bits and pieces of problems."

Adding fuel to the heated debate was a warning by Maxwell (26) that Guidelines carried the "trappings" of research. He suggested that the powerful influence of the NASSP could prompt unwarranted changes in school programs. A reaction by Seifert (35) was more cautious than foreboding. She said that "controlled educational experiments would be needed to locate causal relationships more certainly."

Claiming that the ETS and CEEB have rejected the idea that preparation for the SAT can increase a student's score, Slack and Porter (36) examined the effects of training for the test. Their 1980 study was published in the Harvard Educational Review. Following an extensive literature search, they concluded, "Clearly, there is ample evidence that students can successfully train for the SAT, and that the more time students devote to training, the higher their scores will be, particularly if the coaching materials are well prepared and the training program is part of the school curriculum."

On the matter of test preparation, or coaching, two other studies have supported the findings of the Harvard team. Following a Federal Trade Commission probe of private "coaching" schools, the NEA published its own findings, based on the FTC data. Not only did the NEA study (12) confirm the idea that test preparation raises scores, but it suggested that "taking the SAT three times produces positive results...true for verbal and math scores." Ralph Nader's report, entitled The Reign of ETS (25), reiterated the claim that coaching increases scores, citing another report showing average score gains of 100 points.

Score Changes and Their Causes

Several studies published by the CEEB have resulted in few clues to a full understanding of the SAT score decline. Beaton, Hilton and Schrader (3) discovered that between 1960 and 1972 there were changes in the percentages of students at various ability levels who chose to take the SAT. They also observed a substantial decrease in the proportion of candidates entering four-year colleges. Breland (8) made no firm conclusions on reasons for the decline, but found that between 1960 and 1975 there was an increased representation of test-takers whose families were at low

socio-economic levels. He also observed a pattern of fewer students taking the SAT more than once, and increasingly smaller gains by those who did repeat the test. Jackson (22) observed a 1970-71 decline in numbers of high scoring test-takers. Reluctant to rely on limited data, however, he did not account for the reduced number of high-scoring students.

Many others have hypothesized about the role of schools in connection with declining test scores. Wharton (45) lists 36 such hypotheses the CEEB gleaned from letters, newspapers, and magazines. Echternacht (13), in his Comparative Study of Schools with Different Score Patterns, concluded that the role of schools was small. He did discover, however, that declining enrollments in advanced math courses often accompanied declining SAT score patterns. Echternacht also noted that more schools with decreasing score averages had "made a major effort to teach the basic skills" than had schools with steady or rising score averages. Esty (14) expanded on that notion by speculating that "lower test scores in math...may be resulting from the back-to-basics movement and increased use of minimal competency tests."

While some were looking at schools for reasons for the score changes, others have been scanning society-- attempting to find explanations of the fact. Differences in ethnic background and family income are two areas researchers have examined closely. When the CEEB released information in 1979 (5) (15) indicating that blacks earned lower SAT scores than whites, the report added the fact that 42.2% of the blacks came from families earning less than \$9,000 a year, as compared with 7.3% of the whites. (5)

The relative importance of family income has become a matter of controversy. Based on a study of 1973-74 test-takers, Nairn (29) claims that "ranking students by SAT score is the same as ranking them by family income." Manji (25) reports that the ETS has responded by saying that "students from each income level obtain the full range of scores." In his 1977 research report, Nelson (30) provides support for the ETS position by saying that there is no evidence that the post-1972 score decline is due to changing family income patterns.

Still others aspire to make connections between declining SAT scores and societal changes. Sternglass (32) completed a study of the relationship of nuclear testing and declining scores. His data were based on a study of 1956-58 nuclear testing sites and geographic score patterns. More recently, Venable (41) outlined four hypotheses based on societal changes relating to drugs, integration, collective bargaining, and the "humanistic movement" in education. Venable simply states the hypotheses, offering no research.

Fewer hypotheses and even less research have been proffered in connection with score gains, possibly because prevailing score declines preclude the opportunity. Echternacht's (13) research indicates, however, that students from schools with steady or rising scores take more academic courses than do examinees in decreasing score schools. Thomson (37) adds that, based on his study, high school principals "are convinced that

their strong SAT score patterns are a result of sound preparatory programs for students planning to attend college." Moreover, Alderman and Powers (1) created a research design that resulted in average score increases of eight points in the verbal section of the SAT. After having identified eight schools where an SAT preparation course was offered, they observed the scores of students randomly assigned to receive the training.

Still others can document score gains and make observations about them. Kintisch (24) completed a three-year experimental study of students enrolled in a reading program designed to improve SAT-verbal scores. Score gains made by students in the reading program were greater than those in a control group. Another study by Davis (11), citing average score gains of nine points for seniors who took the SAT, attributes the gains to 11 district-initiated curriculum and staff development projects.

On Improving SAT Scores

If then, score changes have occurred and researchers have been at all successful in identifying reasons, what suggestions do they make for turning score declines into score gains? The research of Alderman and Powers (1) cited the characteristics of their identified existing programs as 1) providing for individualized learning, and 2) using a variety of program materials. Gallagher (18) used their research to make a case for long- and short-range curriculum focus as follows:

- a sequential language and vocabulary development program for students in kindergarten through grade 12
- reading instruction at all grade levels, with particular emphasis on comprehension at the secondary level
- short preparation in test-taking skills.

Tibbetts and Tibbetts (39), however, suggest that English teachers are reluctant to provide training courses like Alderman and Powers describe. The Tibbetts' study indicates that teachers "are against organized training sessions, believing that this is not a professional solution to the [score decline] problem."

On Further Examination made recommendations which parallel the findings relating to schools, but offered no suggestions as remedies for societal factors. Wirtz (44) suggests that schools should restore traditions of critical reading and writing, and take account of students' individual differences without lowering standards.

In the NASSP Guidelines, Thomson and DeLeonibus (38) make specific recommendations for English and math programs. They propose four years of English with an emphasis on expository writing, language usage, vocabulary, and literature study. They also recommend that students read often and deeply, and develop proficiency in writing frequent, short papers. Furthermore, they suggest that English electives be supplementary to the four-year program. In the area of mathematics, Guidelines

suggests the study of algebra and geometry, coupled with either an advanced math course or a third year of algebra geometry for average students.

So say the scholars and researchers. A final word from two other writers, however, may help put the whole issue of SAT scores in context, if not perspective. Claiming to have "horsesense" in the title of her English Journal article, Hillje (20) urges, "If your school is planning a preparation for SAT tests....you could also lobby to have a required one-semester reading improvement course, plus a one-semester basic math review." She champions the idea of raising students' basic reading levels, because, she says:

- 1) the SAT contains reading comprehension questions,
- 2) vocabulary development will occur, and
- 3) greater speed in test-taking will follow.

Still another writer, responding to what she identified as "constituent concern," decided to take the SAT herself, and better understand all the brouhaha over the test. Towne (40), a member of the School Board in Neenah, Wisconsin, said after the exam ordeal, "I now believe I am more informed about the SAT and what the scores indicate."

METHODS AND PROCEDURES

Data available at the beginning of the study were complete Summary Reports from the CEEB for the years 1978 and 1979. Some figures from the 1977 Summary Report, which had been made part of an internal district report, were also available, but incomplete. Those data reported SAT scores and other information which had been obtained from the Student Descriptive Questionnaire, a document a student normally submits to the ETS when he applies to take the SAT. (See Appendix A) From the data recorded in Summary Reports for Manatee County, Florida, and the nation, work sheets were prepared so that figures for each could be examined and compared.

Although the accrued data provided clues for further study, they also exposed questions which led to two additional routes of inquiry. Communication with the College Board was initiated, and a search of the literature was begun. Shortly thereafter, a representative of the College Board came to Manatee County and facilitated the purchase of ETS computer tape data. Such data were available for all three years, 1977-79, in a format which omitted students' identifying information, but contained confidential SDQ information. Thus, the process of examining the SDQ data with score results could be expedited. Meanwhile, arrangements were made to conduct a computer search of related literature through the University of South Florida library.

Further communication with district-based school personnel then occurred, through which arrangements were made to work with the district Coordinator of Measurement and Research in utilizing local data processing facilities. Contact with personnel in the USF Department of Measurement and Research Education was also established, which led to their agreement to provide assistance in preparing and implementing a research design.

After a decision was made to use a multiple regression analysis approach for examining the ETS-supplied data, several theoretical program designs were created. In each, variables were grouped holistically. Two sets of variables including responses to questions related to curricular and extracurricular experiences were built; a third set relating to socio-economic factors and college goals was constructed. Combinations of independent variables were then subjected to stepwise regression programs to identify the five factors and/or conditions which most closely related to the dependent variables-- either SAT-verbal or SAT-math scores. A final general multiple regression analysis was then conducted for each set of five variables with the verbal and math scores.

Early clues in the data-sorting process, however, hinted that still more information could be obtained through a follow-up questionnaire administered to Manatee County test-takers of those years and 1980. The addition of another year had become important in that 1980 Summary Report data indicated that average scores

in Manatee County had declined-- a reversal of what had happened in 1978 and 1979.

It was felt that the questionnaire could be designed to overlap with and confirm the discoveries made in the multiple regression analyses of SDQ responses. It would also attempt, however, to isolate factors left unexplored in the SDQ. Such a questionnaire was designed, refined, and finally administered in April of 1981 to 887 graduates of Manatee County high schools. (See Appendix B) Only the students who took the SAT in October, November and December of each year could be identified by name and address; therefore, a slightly smaller group was surveyed. To date, there has been a 22% response rate for that single mailing of SAT follow-up questionnaires.

Time constraints have prohibited conducting thorough statistical analyses of the questionnaire results. Some facts and tabulated data as reported later in this study may reveal some further clues, however, about factors and conditions relating to a four-year period of score changes in Manatee County.

FINDINGS

Student Descriptive Questionnaire Information

Information from the Student Descriptive Questionnaire was examined through the use of multiple regression analysis computer programs (Wang Laboratories, Inc.) and a study of ETS Summary Reports. Using a series of stepwise regression programs, the first set of 22 variables included students' records of high school experiences related to English and social studies, along with some extracurricular variables. Another set of 23 variables included school experiences related to mathematics, science, and foreign language, and additional extracurricular variables. A final set of 19 variables included socio-economic factors and students' anticipated college-related plans and needs.

An analysis of contributing factors from those three original programs provided the 15 variables for a fourth stepwise regression analysis, through which five variables most closely related to SAT-V scores were identified. Then, a general multiple regression analysis program was used to analyze the overall contributions of the five identified variables.

Each of the steps was repeated in an examination of changes in SAT-M scores.

The study of Summary Reports and results of the multiple regression analyses on the SDQ responses of Manatee County test-takers in 1977 through 1979 revealed the facts outlined in the next several pages. Findings are presented in both table and narrative form.

Statistics for Multiple Regression Analysis (Table 1)

Accounting for 45% of the variance of SAT-V scores were five factors emerging through a series of stepwise multiple regression analysis programs. Listed in Table 1 in the order in which they entered the overall regression equation, the contribution of each independent variable was found to be statistically significant using five and 567 degrees of freedom.

So it was also with identified variables and SAT-M scores. The five factors listed in Table 1 accounted for 53% of the variance in SAT-M scores. Using five and 384 degrees of freedom, each was found to be statistically significant.

TABLE 1: SELECTED STATISTICS FOR STEPWISE MULTIPLE REGRESSION ANALYSIS

SAT-VERBAL AS THE DEPENDENT VARIABLE		
Correlation coefficient	.68	
Coefficient of multiple determination	.45	
Standard error	7.75	
VARIABLES	zero-order correlation	t-value
Class rank	.54	3.24*
Biology GPA	.49	6.08*
AP social studies	.35	6.55*
Number of years/ foreign language	.30	5.24*
Ethnic background	.33	5.12*
SAT-MATH AS THE DEPENDENT VARIABLE		
Correlation coefficient	.73	
Coefficient of multiple determination	.53	
Standard error	7.52	
VARIABLES	zero-order correlation	t-value
Class rank	.58	9.59*
Number of years/ math	.50	5.39*
Sex	-.25	-4.79**
Ethnic background	.31	5.16*
Math ability/ self-perceived	.48	5.06*

* Statistical significance = $p < .01$

** Variables relating to sex were recorded as: male = 0, female = 1

SAT Scores and Score Changes (Table 2)

SAT-Verbal Average Scores:

Average scores of Manatee County students on the verbal portion of the SAT have been consistently higher than average scores of Florida students and higher than national average scores since 1978. The changes in scores in Manatee County have been more drastic than those of Florida and the nation, with as much as a 21-point shift between 1977-78 and 1979-80. The sharp pattern observed through 1978 and 1979, however, reversed in 1980. In the broader context of this study, reasons for that 1980 decline are explored.

SAT-Mathematics Average Scores:

Average scores on the quantitative portion of the SAT again indicate dramatic changes in Manatee County, while somewhat smaller drifts occurred in Florida and the nation. In 1978, Manatee County math scores averaged 22 points higher than in 1977. From 1978-79 there was another positive change of 21 points. Then, in 1980, the average SAT-M score in Manatee County dropped by 35 points. Meanwhile, in Florida, average math scores increased by 0-5 points a year, indicating an overall gain of eight points. At the same time, the national average scores on the math portion of the SAT dropped 1-2 points a year, creating an overall decline of four points.

TABLE 2: SCHOLASTIC APTITUDE TEST SCORES AND SCORE CHANGES

	'77	'78	'79	'80	'77	'78	'79	'80	'77	'78	'79	'80
SAT-Verbal Average	423	444	453	432	422	428	426	424	429	429	427	424
Point difference from prior year	--	+21	+9	-21	--	+6	-2	-2	--	0	-2	-3
Point difference from 1977	--	+21	+30	+9	--	+6	+4	+2	--	0	-2	-5
SAT-Math Average	459	481	502	467	456	461	464	464	470	468	467	466
Point difference from prior year	--	+22	+21	-35	--	+5	+3	0	--	-2	-1	-1
Point difference from 1977	--	+22	+43	+8	--	+5	+8	+8	--	-2	-3	-4
	Manatee County				Florida				Nation			

Test-Taking Population Characteristics (Table 3)

Number of Students with SAT Scores:

Increasing numbers of students in the district have taken the SAT since 1978, but the number of test-takers in 1977 was higher than any year reported. One possible explanation is that the change between 1977 and 1978 is attributable to changing admissions requirements of the junior college serving the local community. Subsequent to the elimination of the Florida Twelfth Grade Test, formerly used as an admissions tool at the junior college, the school began asking that students submit ACT scores. During a transitional period of two or three years, the junior college would accept SAT scores as well. Therefore, it is conceivable that 1977 test-takers might not have received the junior college "message" about which test to take.

Percentage of Male/Female Test-Takers:

In the two years where score gains were most obvious, male test-takers outnumbered females--a condition recognized to have some effect on SAT-M scores. (44) Indeed, year-to-year differences in the male/female makeup of the test-taking populations was one of five contributing variables on the SAT-M score when the multiple regression analysis was run. It may be relevant to note that the test-taking populations in Manatee County in 1977 and 1980 (years of lower scores) more closely matched the four-year pattern for both Florida and the nation.

Percentage of Minority Test-Takers:

Fewer test-takers in Manatee County are of a minority ethnic background than is true of both Florida and the nation. One might hastily conclude that this absence of minority test-takers alone accounts for the score changes, but the shifting percentages from year to year do not accurately reflect the score changes themselves. It is important, however, to note that "ethnic background" emerged as a contributing variable in the multiple regression analyses for both the SAT-V and the SAT-M, indicating some relationship with score changes in Manatee County. (Refer to Table 1)

Median Family Income:

Manatee County test-takers typically come from families earning a median income of \$2,000 - \$2,800 less than test-takers' families in all of Florida, and \$2,200 - \$3,800 less than test-takers' families in the entire nation--a fact of some importance, according to Nairn's (20) study. Regrettably,

however, a more thorough statistical analysis of the relationship of family income to SAT scores was prohibited by the fact that the SDQ used a different income scale each year. The complexity of dealing with responses of different numbers and with different values negated the feasibility of using the SDQ tape data on family income.

Test-takers' College Degree-level Goals:

Further substantiation for the earlier premise that the decline in numbers of test-takers from 1977 to 1978 was related to change in Manatee Junior College admissions policy is apparent from the figures relating to college aspirations. Percentages of Manatee County test-takers intending to pursue a two-year program or degree are smaller than comparable Florida or national figures, and Manatee County percentages have shown a decline since 1977. A correlative fact is that greater numbers of Manatee County students indicated an interest in a bachelor's degree and graduate program than students in Florida and the nation. The research of Beaton, Hilton, and Schrader (3) indicates that this discrepancy may have some importance.

TABLE 3: TEST-TAKING POPULATION CHARACTERISTICS

	'77	'78	'79	'80	'77	'78	'79	'80	'77	'78	'79	'80
# students with SAT scores	316	232	247	286	Not applicable				Not applicable			
Sex: % male	45	55	52	48	48	48	48	49	49	48	48	45
% female	55	45	48	52	52	52	52	51	51	52	52	52
Ethnic background: % minority	11.5	10.8	6.8	8.4	15	14	14.1	14.6	16	17	17.1	17.9
Median family income: (in thousands)	14.4	16.2	18.6	18.4	16.5	18.2	19.9	21.2	17.6	19.2	20.8	22.2
Degree-level college goals: % two-year program or degree	4	3	3.8	2.8	6	5	4.3	4.0	6	6	6	5.8
% BA or BS	30	29	34.2	30.9	30	30	30	30.3	30	31	31.4	31.6
% graduate study	40	49	46.8	48.9	44	45	46.9	47.8	40	41	41.1	42.2
	Manatee County				Florida				Nation			

SAT Scores of Males/Females (Table 4)

SAT-Verbal Male/Female Score Differences:

Differences in the scores of males and females on the verbal portion of the SAT indicate that Manatee County test-taking males scored higher in 1978 and 1979, but females scored higher in 1980. In Florida, male scores were 3-5 points higher than female scores. In the nation, males consistently had average scores that were eight points higher than those of females.

SAT-Math Male/Female Score Differences:

Male test-takers in Manatee County confirmed studies indicating that males traditionally perform better than females on the quantitative portion of the SAT. (44) The range of score differences in Manatee County, however, was much broader than in Florida and the nation. In 1978, male SAT-M scores were 64 points higher than female scores; in 1979, 44 points higher. In 1980, however, males' average SAT-M scores were just 34 points higher than their female counterparts.

At the same time, Florida males' averages SAT-M scores were 40-44 higher each year, and the nation's average SAT-M scores of males were 48-50 points higher. One might speculate about the relationship between the differences in performance by males and females on the SAT-M in Manatee County, and the parallel percentages of the male/female makeup of the district's test-takers. (See Table 3) It may be important to note that while the ranges of score differences between males and females in Florida and the nation were relatively stable, so were the year-to-year percentages of male/female test-takers.

TABLE 4: SAT SCORES OF MALES AND FEMALES

	'78	'79	'80	'78	'79	'80	'78	'79	'80
SAT-Verbal Average (males)	448	457	431	430	427	425	433	431	428
SAT-Verbal Average (females)	440	448	433	425	424	422	425	423	420
Male/female SAT-Verbal point difference	+8	+9	-2	+5	+3	+3	+8	+8	+8
SAT-Math Average (males)	508	523	485	483	485	484	494	493	491
SAT-Math Average (females)	444	479	451	439	443	444	444	443	443
Male/female SAT-Math point difference	+64	+44	+34	+44	+42	+40	+50	+50	+48
	Manatee County			Florida			Nation		

High School Record of Class Rank (Table 5)

Percentage of Students in Highest Tenth of Class:

A test-taking population characteristic in Manatee County appearing to have much relationship to the surging score gains of 1978 and 1979 is class rank--in terms of the students' reporting themselves in the highest tenth of their graduating classes. The relationship applies also to the lower average scores of 1977 when examined through the multiple regression analyses applicable for those three years. A zero-order correlation of .54 between class rank and SAT-V scores was observed, and a .58 correlation between class rank and SAT-M scores was recorded. In a stepwise multiple regression analysis, class rank emerged as the most-contributing variable when measured against both sets of scores. (Refer to Table 1)

SAT Average Scores of Students in Highest Tenth of Class:

An examination of the data indicating average SAT scores of students ranking in the highest tenth of their graduating classes exposes the possibility that the performance of high-ranking students has affected the year-to-year changes in scores in Manatee County. In 1980, when SAT scores declined, the average SAT-V score of these high-ranking students was below 500, having been well above 500 in the prior two years. The research of Beaton, Hilton and Schrader (3) supports the premise that percentage shifts from year to year, as related to students' ability levels, can have some resulting effect on scores.

TABLE 5: HIGH SCHOOL RECORD OF CLASS RANK

	'77	'78	'79	'80	'77	'78	'79	'80	'77	'78	'79	'80
Class rank: % in top tenth	21.6	30.5	32.4	23.4	21	21	21.4	20.3	23	22.1	21.8	21.6
SAT-V Average of top tenth	*	522	535	495	*	512	511	508	*	515	514	510
SAT-M Average of top tenth	*	578	594	549	*	562	563	563	*	570	568	568
	Manatee County				Florida				Nation			

* Original 1976-77 Summary Report not available.

Percentage of Students Planning to Apply for Advanced Placement in College (Table 6)

Advanced Placement Aspirations by Subject:

On examining the percentages of SDQ responses relating to test-takers' intentions of applying for advanced placement credit in college, it is important to place the Manatee County figures in context with a district curricular change. In 1977-78, a course in Advanced Placement American History was introduced at two of the district's high schools. In each subsequent year, other AP courses have been added to district schools' curricula, so that in 1980-81, AP courses in most disciplines are available at three of the district's high schools.

Perhaps the fact of AP-related curricular change, then, can account for the figures in Table 6, which indicate consistently that larger percentages of Manatee County students intend to apply for advanced placement credit in college than do Florida or national test-takers.

An intention to apply for advanced placement credit in social studies emerged as one of the top five contributing variables in the multiple regression analysis relating to SAT-V scores.

TABLE 6: PERCENTAGE OF STUDENTS PLANNING TO APPLY FOR ADVANCED PLACEMENT IN COLLEGE (BY SUBJECT)

	'77	'78	'79	'80	'77	'78	'79	'80	'77	'78	'79	'80
% total SAT-takers planning to apply	62	72	67	64.7	52	56	55.5	55.8	47	48	49.1	50.6
English	*	47	39.7	37.4	*	30	29.3	29.3	*	21	22	23.1
Mathematics	*	39	36	24.1	*	24	23.6	23.5	*	19	19.5	20.5
Social Studies	*	23	31.4	23.8	*	18	17.5	17	*	12	12.2	12.7
	Manatee County				Florida				Nation			

* Original 1976-77 Summary Report data not available.

High School Record of Average Number of Years of Study of Subject (Table 7)

Number of Years of Subjects Studied:

Upon examining the records of test-takers in terms of the average number of years a subject was studied, a picture of students' school experiences is clarified. Table 7 indicates that Manatee County test-takers graduating between 1978-80 averaged more than four years of English, unlike what occurred in Florida and the nation. Further, they averaged more than three and a half years of mathematics, in keeping with Florida test-takers, but more than students throughout the nation. In fact, the number of years of study of math emerged as a contributing variable in the multiple regression analysis related to SAT-M scores. Its zero-order correlation with math SAT scores was .50. (Refer to Table 1)

A correlation between number of years of study of foreign language and SAT-V scores was evident, to a lesser degree of .30, although "number of years of foreign language" was one of the top five contributing variables in the multiple regression formula explaining factorial relationships with SAT-V scores. It may be important, however, to note that Manatee County test-takers averaged fewer years of foreign language study than did students in both Florida and the nation.

It is also apparent that Manatee County test-takers between 1978 and 1980 averaged more years of study in science and social studies than did test-takers in Florida and the nation. Other data in this study relating to the possible contributions of the Biology grade point average and Advanced Placement Social Studies can provide further clarification of the possible importance of number of years of study of a subject.

TABLE 7: HIGH SCHOOL RECORD OF AVERAGE NUMBER OF YEARS OF STUDY (BY SUBJECT)

	'78	'79	'80	'78	'79	'80	'78	'79	'80
English	4.04	4.09	4.06	3.98	4.01	3.99	3.96	3.97	3.96
Mathematics	3.49	3.69	3.52	3.49	3.55	3.59	3.40	3.44	3.47
Foreign language	1.22	1.28	1.41	1.72	1.75	1.77	2.18	2.18	2.17
Biological science	1.59	1.46	1.61	1.61	1.61	1.61	1.39	1.40	1.40
Physical science	2.01	2.16	2.12	1.67	1.68	1.68	1.74	1.76	1.77
Social studies	3.42	3.46	3.53	3.07	3.06	3.07	3.21	3.21	3.20
	Manatee County			Florida			Nation		

High School Record of Grade Point Averages (Table 8)

Grade Point Averages by Subject:

A high school GPA is acknowledged to be a better predictor of performance in the first year of college than the SAT itself. According to the College Board, "grades are still the best single predictors of college performance," with a median validity coefficient of .50. (44) Therefore, some reference to patterns of GPA's in Manatee County is necessary for a perspective of this study.

Upon examining Table 8, one can observe a familiar pattern with Manatee County's overall GPA--inclining figures through 1979, then a decline in 1980. Overall GPA patterns for both Florida and the nation reflect slight declines. Slightly waning English GPA's are apparent in Manatee County, Florida, and the nation. Math GPA's on the contrary, rose in Manatee County through 1979, and then fell in 1980. Both Florida and the nation illustrate only a slight vacillation or decline in Math GPA's in the same four-year period.

Perhaps the most revealing figures are those related to the Biology GPA. Again, Manatee County students' GPA's rose and fell, while a subtle wavering decline occurred in Florida and the nation. The Manatee County Biology GPA, however, was somewhat higher than those of both Florida and the nation in 1979 and 1980. The Biological Science GPA emerged as a contributing variable in the multiple regression analysis relating to Manatee County SAT-V scores, with a zero-order correlation of .49. (Refer to Table 1)

TABLE 8: HIGH SCHOOL RECORD OF GRADE POINT AVERAGE (BY SUBJECT)

	'77	'78	'79	'80	'77	'78	'79	'80	'77	'78	'79	'80
Mean overall high school GPA	3.14	3.15	3.21	3.11	3.14	3.14	3.12	3.10	3.11	3.09	3.08	3.06
Mean English GPA	3.28	3.20	3.19	3.14	3.25	3.24	3.20	3.15	3.21	3.18	3.15	3.13
Mean Math GPA	2.83	2.83	3.03	2.95	2.85	2.86	2.85	2.85	2.85	2.85	2.84	2.84
Mean Biological Science GPA	3.13	3.16	3.24	3.20	3.16	3.17	3.17	3.14	3.08	3.07	3.06	3.05
	Manatee County				Florida				Nation			

FINDINGS

SAT Follow-up Questionnaire Information

Designed to explore the possible contribution of identified factors on students' SAT scores as the test-takers themselves perceived their experiences, the questionnaire was mailed to 887 Manatee County graduates who had taken the SAT prior to their graduation in 1977 through 1980. One hundred and eighty-eight responses were received in time to be tabulated. Therefore, the data on the SAT follow-up questionnaire must be interpreted with an understanding of the built-in bias of so small a sample, and an awareness of the fact that responses merely reflect students' perceptions and their ability to recall experiences of one to four years ago.

The construction of the questionnaire permitted an examination of both school-related and non-school-related factors. Questions 8-24 related to school experiences, whereas questions 25-33 relate to experiences, attitudes and perceptions not necessarily associated with school. There was no attempt to label the questions as school-related or not, however. (Refer to Appendix B)

Responses to questionnaires returned by Manatee County graduates/examinees were tabulated as an entire group, by school, and by year of graduation. Subsequently, the same data were examined by using a single response to identify sub-groups of the respondents to correspond with the SDQ findings.

Percentages are used to relate the information revealed in the analysis of the entire group, whereas both numbers of responses and percentages are given in the analysis of smaller groupings. Information that follows appears in both table and narrative form.

All Schools, All Years (1977-1980)

Responses of the entire group returning the questionnaire indicated the following:

- 49% of the respondents were male
- 93% were white or Caucasian
- 50% earned an overall GPA of 3.5 or better
- 48% were in the highest tenth of their graduating classes
- 71% took the SAT only once.

Moreover, 60% of the respondents reported a score of 500 or higher on the SAT-V, and 71% reported a score of 500+ on the SAT-M. It is apparent that returned questionnaires were skewed in the direction of high ranking/ high scoring students.

Responses to questions reporting all test-takers' perceptions of factors and conditions positively affecting their scores are recorded in Tables 9-11.

Conditions Reported Having a MAJOR EFFECT on SAT Scores (Table 9)

An examination of Table 9 indicates that Manatee County test-takers felt strongly that certain factors and conditions affected their score performance on the SAT. Those conditions identified reflected both school-related curricular conditions and non-school-related factors. The influence of mathematics courses on SAT performance, as perceived by students, confirms the data provided in the multiple regression analysis relating to SAT-M performance. Some importance may be inferred from the fact that items ranked 1, 3, and 5 relate to students' personal motivation and expectations of themselves.

TABLE 9: CONDITIONS HAVING A MAJOR EFFECT ("A" responses only)

Rank order	Percentage of responses	Identified factor
1	61%	motivation/ academic achievement
2	57%	math course content
3	55%	motivation/ college entrance exams
4	53%	number of math courses
5	51%	personal expectations/ school performance

Conditions Reported Having a MAJOR or SOME POSITIVE EFFECT on SAT Scores
(Table 10)

Table 10 extends the list of contributing factors to include five more school-related conditions, among which are three relating to English curricula and one to science. In this table there is mention of "college prep course work," a term which is broadly descriptive of a large number of courses in each of the district's high schools. Another non-school-related condition appearing in this table attributes score performance to "parents' expectations of school performance."

TABLE 10: CONDITIONS HAVING A MAJOR EFFECT OR SOME POSITIVE EFFECT ("A" & "B" responses)

Rank order	Percentage of responses	Identified factor
1	89%	number of math courses
1	89%	personal expectations/ school performance
3	88%	math course content
3	88%	motivation/ academic achievement
5	84%	number of English courses
6	82%	vocabulary study in English
6	82%	motivation/ college entrance exams
8	80%	English course content
9	77%	college preparatory course work
10	74%	number of science courses
10	74%	parents' expectations/ school performance

Year-to-Year Analysis of Conditions Having a MAJOR EFFECT (Table 11)

Table 11 illustrates the year-to-year consistency of items ranked 1-3, with the exceptions of 1977 respondents' ranking of "math course content" and "motivation to score well on college entrance exams." The emergence of a new contributing factor, ranked fifth in 1980, is noteworthy as it may reflect the fact of an increasing number of opportunities for Manatee County students to take Advanced Placement courses.

Although the data do not appear in Table 11, one other year-to-year change in listings of contributing factors may be noteworthy. "Prior test-taking experiences" was marked as having had either a "major effect" or "some positive effect" in 1977 through 1980 as follows:

1977 - 51% of the respondents

1978 - 60%

1979 - 75%

1980 - 74%

The increasing percentages of responses from year to year may provide some clues to the impact of increased testing experiences in Florida. (17)

TABLE 11: YEAR-TO-YEAR RANKING OF CONDITIONS HAVING A MAJOR EFFECT ("A" responses)

Identified factor	1977 rank	1978 rank	1979 rank	1980 rank
motivation/ academic achievement	1	1	2	2
math course content	*4	3	3	1
motivation/ college entrance exams	*4	2	1	3
number of math courses	3	*5	3	3
personal expectations/ school performance	2	3	6	
"honors" and "advanced" courses	*4		5	
participation in AP courses				*5
college prep course work		*5		*6

* less than 50% of responses

Conditions Reported Having NO EFFECT on SAT Scores (Table 12)

An examination of factors marked "C" on the questionnaire, indicating that the condition had no effect on the SAT score, provided some information about test-takers' perceptions of the relevance of some school/curricular experiences and the SAT. Percentages of responses were considerably smaller.

TABLE 12: CONDITIONS HAVING NO EFFECT ("C" responses)		
Rank order	Percentage of responses	Identified factor
1	37%	writing assignments in English
2	36%	number of social studies courses
3	33%	number of foreign language courses
4	28%	literature study in English
5	23%	study of test-taking strategies in school

Year-to-Year Analysis of Conditions Having NO EFFECT on SAT Scores:

In an examination of year-to-year changes in "C" responses, one factor emerged in terms of its difference in 1980. Twenty-six per cent of the respondents in 1980 indicated that "parents' expectations of performance in school" had no effect on their SAT scores. In a year-to-year ranking of non-contributing factors, that one did not show up as one of the top five factors in any other year, but ranked fourth in 1980.

Reports of Sub-Groups of Questionnaire Respondents

Virtually all of the sub-groups examined indicated the same factors and conditions reported earlier as having a positive effect on SAT scores. The few exceptions or departures in patterns in their responses are reported as follows:

Entire Group & Yearly - Highest Tenth of Graduating Class (Number = 90):

High test scores and grades were characteristic of this group. Seventy-three per cent of these students earned a score of 500 or more on the SAT-V; 91% earned 500+ on the SAT-M. Ninety per cent had earned an overall GPA of 3.0 or higher. Respondents in 1979 (N = 28) listed nine conditions as having a major positive effect (50%+ "A" responses), while 1980 graduates (N = 28) indicated only six. Seventy-one per cent of the 1979 respondents indicated that "reading often and widely" had a major effect.

SAT Scores of 500 or Higher (Number SAT-V = 113, Number SAT-M = 146):

High-scoring females outnumbered males on both the verbal and quantitative portions of the SAT. Fifty-five per cent of those scoring 500+ on the SAT-V were female; 51% scoring 500+ on the SAT-M. Fifty-eight per cent of those with a high verbal score had an overall GPA of 3.5 or higher; 56% of those with a high quantitative score had a 3.5+ GPA.

Advanced Placement Students (Number = 39):

Fifty-three per cent of those students who indicated that participation in AP courses had a major positive effect on SAT scores also indicated that "reading often and widely" had a major effect.

SAT Taken More Than Once (Number taken twice = 42, Number taken three times = 9):

Sixty-nine per cent of the students who had taken the SAT twice scored 500 or higher on the verbal portion; 81% scored 500+ on the quantitative section. Eighty-nine per cent of the students who had taken the SAT three times scored 500 or higher on the verbal portion; 100% scored 500+ on the SAT-M.

Percentage of Respondents Compared with Percentage of Test-takers (Table 13)

Percentages of students responding to the questionnaire closely paralleled the percentages of students tested in Manatee County from 1977-80, indicating that the sample return was in proportion with the number of examinees from each school. There were, however, unique characteristics of school-by-school responses--sometime closely compatible with individual schools' programs.

TABLE 13: PERCENTAGE RESPONDENTS/ PERCENTAGE TEST-TAKERS				
	School A	School B	School C	School D
Percentage of test-takers (Oct.-Dec. 1977-80)	22%	59%	10%	9%
Percentage of total number responding to questionnaire	25%	56%	9%	10%

Individual School Characteristics, All Years

School A: (Number = 47):

In 1976, School A initiated an individualized, developmental reading program for its students, in which a student may devote some time to preparing for standardized tests, including the SAT. Sixty per cent of School A respondents indicated that "experience in a developmental reading program" contributed to their scores. In 1977-78, an Advanced Placement program was initiated at School A; responses for all four years totaled 47% who identified "participation in AP courses" as having a positive effect on SAT scores. Moreover, 81% indicated that "emphasis on college prep course work" was a contributing factor.

School B (Number = 105):

School B, too, began offering AP courses to its students in 1977-78. Sixty-four per cent of School B respondents indicated that "participation in AP courses" contribute to their scores. School B also offers a broad academic curriculum, replete with "advanced" course offerings and "honors" courses utilizing a weighted grading system. Not too surprising, then, is the fact that 81% of the respondents from School B cited "participation in 'honors' or 'advanced' courses" as having a positive effect on their scores. Eighty per cent indicated that "emphasis on college prep course work" was a contributing factor.

School C (Number = 17):

School C cited the smallest number of contributing factors and conditions; only four were identified by 50% or more of the respondents as having a major effect on scores. The highest percentage of all school reports, however, was recorded by School C students in two related areas. Ninety-five per cent of the respondents indicated that both "number of math courses taken" and "course content in math classes" had some positive effect on their SAT scores.

School D (Number = 19):

Responses from School D were somewhat skewed toward non-school-related factors and conditions. Ninety percent of the respondents credited four factors with contributing to their SAT scores. They are:

"Personal motivation to score well on college entrance exams,"

"Personal motivation for academic achievement in school,"

"Personal expectations of performance in school," and

"Regular habits of reading often and widely."

SUMMARY OF RESEARCH FINDINGS

During the course of the study, four different investigative approaches were used. As identified in Table 14, the research effort revealed eleven factors and conditions related to changes in Scholastic Aptitude Test scores in Manatee County. Each of those factors/conditions were discovered to relate to score changes in at least two dimensions of the research design.

Inasmuch as the Student Descriptive Questionnaire did not pose questions directly relevant to the values of reading, test-taking experience, or college prep courses, an appropriate notation indicating "not evaluated" is applied in the table. A notation of "questioned in the study" indicates that there was insufficient data to confirm or refute the value of a factor.

SUMMARY TABLE OF RESEARCH FINDINGS

TABLE 14: FACTORS AND CONDITIONS RELATED TO CHANGES IN SCHOLASTIC APTITUDE TEST SCORES AS ESTABLISHED THROUGH FOUR DIMENSIONS OF THE RESEARCH DESIGN				
X - confirmed in the study NA - not evaluated ? - questioned in the study () - noted in the bibliography				
FACTORS/CONDITIONS	ETS Summary Reports	Multiple Regression Analysis	Literature	Follow-up Questionnaire
Ethnic background	X	X	(5) (15)	
Sex	X math	X	(44)	?
Class rank	X	X	(3)	X
Grade point average	X biology	X	(44)	X
Number years of study of a subject	? for. lang. X math	X for. lang. X math	(13) (38)	? for. lang. X math
Test-taking experience	NA	NA	(1) (8) (12) (18) (36)	X
Reading habits	NA	NA	(40)	X
Self-perception of ability	X math	X math		X
Reading program	NA	NA	(1) (18) (20) (24)	X
Advanced placement	X soc. stud.	X		X
College prep courses	NA	NA	(13) (37) (38) (44)	X

CONCLUSIONS

The findings of this study show that there are factors and conditions which relate to SAT score changes, and that a number of them could be identified in Manatee County, a mid-sized Florida school district. A more complex problem developed in attempting to describe them as "school-related" or "non-school-related," that is, in placing them in broad areas of classification. Throughout this paper those two labels have been loosely applied. At this juncture, however, there is the necessity of being more explicit, refining the terms with qualifying statements. The eleven factors/conditions that were determined to have a relationship with score changes are herewith listed in four areas more specifically detailing the school/non-school overlap.

Non-school-related factors:

1. Ethnic background
2. Sex

Both of these factors are unrelated to schools in the fact that they are "given" conditions. The makeup of the community-at-large determines how many minority students will attend its schools and how many males or females will be enrolled in a school in any given year.

Non-school factors subject to variables of school setting/conditions:

3. Class rank
4. Grade point average

Class rank is somewhat determined by the school a student attends. He may well be in the top tenth of his class if he attends a school with a population of students from low socio-economic levels, but rank in the upper fifth of a class of students whose socio-economic levels are higher.

Grade point average, too, is subject to matters of whether or not there are grade inflation practices in a school, or courses designated as "honors" or "advanced" with "weighted grading".

Non-school factors strongly subject to variables of school/district philosophy, curriculum, or methodology:

5. Number of years of study of a subject
6. Test-taking experience
7. Reading habits
8. Self-perception of ability

Although a student has some choice in the matter of how many years of study he will pursue in some subject areas, he is bound to the minimum legal requirements

of the school or district or state. Thus, if a district or school has stringent graduation requirements, he will probably accrue more years per subject area. Obviously, he may choose more than the required number to the degree that his schedule will permit.

Test-taking experience can be enhanced by a school or district or state in providing numbers of standardized testing instruments. A student, too, can choose still others - PSAT, GED, ASVAB, AP exams, ACT, SAT... and the list goes on. Many of those tests he is able to take in school.

Reading habits are developed in many environments -- most obviously, at home and at school. The school's influence may be felt to the degree that reading programs exist in a school or district, through the philosophical commitment of teachers to reading, and by the amount of reading required of students. In short, reading habits may be taught and learned.

A student's perception of his own abilities is, at least, enhanced in the school environment. Grouping practices in a school may affect students' self-perception; the "Hawthorne effect" may be applicable in such situations. Students in Advanced Placement classes, for example, know they are doing college work, work that is therefore more "challenging" than other high school course work. Certainly a school philosophy that promotes notions of students' independent thinking, student responsibility, or positive self-concept for students may be influencing students' self-perceptions. However strong the school's influence may be, it should also be noted that many other environments/groups are working on students' self-perceptions.

School-related factors:

9. Reading programs
10. Advanced Placement programs
11. College-preparatory courses

What the school does in these areas largely determines how much effect each of the factors or conditions may have. Certainly a school or district can offer such programs. Indeed, reading programs, Advanced Placement courses, and college preparatory courses were found to exist in schools in Manatee County. Making them available, however, is only a beginning. The next move is insuring that the quality of such programs is established, maintained, and, where possible, measured or evaluated.

Implications

In that this study has examined factors and conditions relating to SAT score changes, let it be added that changes in SAT scores are newsworthy. Indeed, Bracey (7) says, "the public relations validity of high SAT's cannot be denied". Thus, a final word of caution about the relevance and implications of this study is appropriate.

If any school district wishes to capitalize on positive changes in SAT scores, then it must explore why those changes are occurring and then decide whether or not factors and conditions related to the changes represent sound educational goals and practices.

Manatee County was a two-year beneficiary of large SAT score gains and a third-year recipient of a substantial score decline. The district's commitment to sound educational goals and practices have remained unchanged, however. If there is value in the study for Manatee County and others, it is reinforcing through research the merit of philosophies and programs which reflect the district's already-established commitment.

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THE STUDENT DESCRIPTIVE QUESTIONNAIRE

Your responses to the Student Descriptive Questionnaire allow colleges to individualize the information they send to you to fit your interests and needs. This information may also assist counselors and admissions officers in their appraisal of your ability to do college-level work. The SDQ enables you to present a composite picture of yourself—your interests, accomplishments, and plans—along with the test

score information on your ATP Report. Answer each question as accurately as possible because your answers to most of these questions will appear on the copies of the report which will be sent to you, to your high school, and to the colleges that you designate. When you receive your ATP Student Report, you can verify that your information is reported just as you supplied it on your SDQ.

Your answers to other questions will not appear on your individual report or your school and college reports but will be used for research and planning by educational institutions. Though you are encouraged to answer all questions, you may omit the answer to a specific question if you wish.

If you indicate in item 1 of the questionnaire that you want to be included in the Student Search Service, some of the information you give will help identify you to colleges and scholarship agencies interested in students with certain characteristics. You need to provide your complete mailing address, including your zip code, to be included in the Student Search Service.

Most of the questions have been written for students currently in high school. If you are no longer in high school, answer them as accurately as you can. However, be sure to answer those questions specifically directed to you. Record your answers in item 16 of the Registration Form.

Note: If you have previously filled out a Student Descriptive Questionnaire (SDQ) and want to update your answers, record one of the following options at the beginning of the SDQ response area.

- (A) Substitute my answers here for my previous answers to the same questions; keep the other information I gave earlier.

- (B) Delete all answers I gave earlier; include only my current answers.

- (C) Delete all my previous answers. I do not wish to have SDQ information in my records.

For further information on changing descriptive information, see page 15.

1. The College Board's Student Search Service is an information service for students, colleges, and scholarship agencies. It is free to all students who participate in the ATP and works this way:

If you agree to participate, colleges and scholarship sponsors interested in students with your characteristics can ask for and receive your name, address, sex, high school, and intended major. Different colleges and agencies will be interested in different groups of students, for example, those who plan to major in a certain subject or those eligible for special scholarships.

By participating, you may receive information from a variety of colleges and scholarship sponsors about their programs, admissions procedures, and financial aid opportunities. A well-known university may write to you regarding a specific curriculum or a new program. A less well-known college, or one in a different region of the country, may tell you about its campus and academic offerings. A scholarship agency, such as a state or an ROTC scholarship program, may send you information about financial aid opportunities you may not be aware of.

THE STUDENT DESCRIPTIONIVE QUESTIONNAIRE

Your name will be made available to the Student Search Service only if you answer "YES" to this item.

- (Y) Yes, I want to be included in the Student Search Service.
(N) No, I do not want to be included in the Student Search Service.

2. What kind of high school are you attending?
(A) Public (B) Other than public
3. Which of the following best describes your present high school program?
(A) Academic or college preparatory
(B) General
(C) Career-oriented (business, vocational, industrial arts)
(D) Other
4. About how many students are there in your high school class?
(A) Fewer than 100 (B) 100-249 (C) 250-499
(D) 500-749 (E) 750 or more
5. What is your most recent high school class rank? (For example, if you are 19th in a class of 100, you are in the second tenth.) If you do not know your rank or rank is not used in your school, give your best estimate.
(A) Highest tenth (top 10%) (D) Middle 9th
(B) Second tenth (11-20%) (E) Fourth 9th
(C) Second 9th (21-30%) (F) Lowest 10th

Questions 6 through 11 ask you to blacken the letter corresponding to the total years of study you expect to complete in certain subject areas. Include in the total only courses you have taken since beginning the ninth grade and those you expect to complete before graduation from high school. Count less than a full year in a subject as a full year. Do not count a repeated year of the same course as an additional year of study.

- (A) One year or the equivalent
(B) Two years or the equivalent
(C) Three years or the equivalent
(D) Four years or the equivalent
(E) More than four years or the equivalent
(F) I will not take any courses in the subject area.
6. English
 7. Mathematics
 8. Foreign Languages
 9. Biological Sciences (for example, biology, botany, or zoology)
 10. Physical Sciences (for example, chemistry, physics, or earth sciences)
 11. Social Studies (for example, history, government, or geography)

For each of the subject areas in Questions 12 through 17, blacken the latest year-end or mid-year grade you received since beginning the ninth grade. For example, if you are a senior and have not taken biology or any other biological science since your sophomore year, indicate that year-end grade. If you are a junior and have completed the first half of the year in an English course, indicate that mid-year grade.

If you received the grade in an advanced, accelerated, or honors course, also blacken the letter H.

- (A) Excellent (usually 90-100)
(B) Good (usually 80-89)
(C) Fair (usually 70-79)
(D) Passing (usually 60-69)
(F) Failing (usually 50 or below)
(G) Only "pass-fail" grades were assigned and I received a pass.
(H) The grade reported was in an advanced, accelerated, or honors course.

12. English
13. Mathematics
14. Foreign Languages
15. Biological Sciences
16. Physical Sciences
17. Social Studies
18. Will you have completed advanced high school or college-level work before entering college? If so, mark the letter for each field in which you plan to apply for advanced placement, credit-by-examination, or exemption from required courses.
(A) English
(B) Mathematics
(C) Foreign Languages
(D) Biological Sciences
(E) Physical Sciences
(F) Social Studies
(G) Art/Music
19. On the average, how many hours per week do you work in a part-time job? (Exclude vacations.)
(A) None (E) 18 to 20 hours
(B) Less than 6 hours (F) 21 to 25 hours
(C) 6 to 10 hours (G) 26 to 30 hours
(D) 11 to 15 hours (H) More than 30 hours
20. How much have you participated in community or church groups while in high school?
(A) I have not been a member of any community or church group.
(B) I have belonged to one or two groups but have not participated actively.
(C) I have participated actively in one or two groups but have not held any major offices (for example, president, chairman, or treasurer).
(D) I have participated actively in more than two groups but have not held any major offices.
(E) I have participated actively and have held a major office in at least one community or church group.
21. How much have you participated in athletics in or out of high school?
(A) I have not participated in athletics.
(B) I have participated in individual or intramural athletics.
(C) I have been on one or more varsity teams but have not earned a varsity letter.
(D) I have earned one or more varsity letters in a single sport.
(E) I have earned varsity letters in more than one sport.

22. How much have you participated in clubs and organizations in high school?

(A) I have not been a member of any club or organization.
 (B) I have belonged to some organizations but have not held any major offices (for example, president, editor, or class or school representative).
 (C) I have held one or two major offices.
 (D) I have held three or four major offices.
 (E) I have held five or more major offices.

23. During your high school years how many honors or awards (for example, essay contest, debating tournament, science fair, music, art or theater competition or membership in a scholastic honors group) have you received?

(A) None (B) One or two (C) Three or four
 (D) Five or six (E) Seven or more

24. What is the highest level of education you plan to complete beyond high school?

(A) A two-year specialized training program (for example, electronics or laboratory technician)
 (B) A two-year Associate of Arts degree (A.A.)
 (C) Bachelor's degree (B.A. or B.S.)
 (D) Master's degree (M.A. or M.S.)
 (E) Doctor's or other professional degree (such as M.D. or Ph.D.)
 (F) Other or undecided

25. What is the date of your high school graduation? Blacken month and last two digits of year.

26. When do you expect to enter college? Blacken month and last two digits of year.

Your response to question 27 will not be included in the reports that are sent to you, your school, and the colleges you designate.

27. Do you plan to apply for financial aid at any college?

(Y) Yes (N) No

28. When you enroll, do you expect to attend college

(A) full-time (B) part-time

29. When you enroll, do you expect to attend college during the

(A) day (B) evening

30. Where do you prefer to live during your first two years in college?

(A) At home
 (B) Single-sex dorm
 (C) Coed dorm
 (D) Fraternity or sorority house
 (E) On-campus apartment
 (F) Off-campus apartment

31. Are you a United States citizen?

(Y) Yes (N) No

32. Are you a veteran of the United States Armed Forces?

(Y) Yes (N) No

Questions 33 through 36 are for students who have finished high school and have already attended college. If you have not, go on to the paragraph preceding question 37.

33. Please put the code number of the college you are attending or most recently attended in the spaces provided and blacken the corresponding oval. See the gray-bordered pages for college code numbers.

34. Are you enrolled in that college now?

(Y) Yes (N) No

35. Approximately what was your grade point average at that college on a scale of 0 (F) to 4 (A)?

(A) 3.5 or above
 (B) 3.0—3.4
 (C) 2.5—2.9
 (D) 2.0—2.4
 (E) 1.5—1.9
 (F) Below 1.5
 (G) Not applicable

36. If you expect to transfer credits, at what level do you expect to enter the new college?

(A) First semester freshman
 (B) Second semester freshman
 (C) First semester sophomore
 (D) Second semester sophomore
 (E) Junior
 (F) Senior

The College Board wants its tests and services to be fair and useful to all candidates. Research based on responses to questions 37 and 38 will help the College Board evaluate and improve its tests and services. Your responses will also be reported to your school and to those colleges that accept such information in order to make sure their programs are fair and useful to students of all racial and ethnic backgrounds.

37. How do you describe yourself?

(A) American Indian
 (B) Black or Afro-American or Negro
 (C) Mexican-American or Chicano
 (D) Oriental or Asian-American
 (E) Puerto Rican
 (F) White or Caucasian
 (G) Other

38. Is English your best language?

(Y) Yes (N) No

Your responses to questions 39 and 40 will be used only for research. They will not be included in the ATP Reports that are sent to you, your school, and the colleges you designate.

39. Indicate the highest level of education completed by your father or male guardian.

(A) Grade school
 (B) Some high school
 (C) High school diploma
 (D) Business or trade school
 (E) Some college
 (F) Bachelor's degree
 (G) Some graduate or professional school
 (H) Graduate or professional degree

40. Using the list in question 39, indicate the highest level of education completed by your mother or female guardian.

Questions 41 through 43 ask about your parents' financial situation and should be answered in consultation with them. Your individual responses will not be reported to anyone. Only summary responses for groups of students will be reported to colleges and high schools.

41. How many persons are dependent on your parent(s) or legal guardian for financial support? Be sure to include your parent(s) and yourself.

(A) Two (B) Three (C) Four (D) Five
(E) Six (F) Seven (G) Eight (H) Nine or more

42. During your first year in college, how many persons dependent on your parent(s) or legal guardian will be in college? Include yourself.

(A) One (B) Two (C) Three
(D) Four (E) Five or more

43. What was the approximate income of your parents before taxes last year? Include taxable and nontaxable income from all sources.

(A) Less than \$3,000 a year (about \$67 a week or less)
(B) Between \$3,000 and \$5,999 a year (from \$58 to \$114 a week)
(C) Between \$6,000 and \$7,499 a year (from \$115 to \$144 a week)
(D) Between \$7,500 and \$9,999 a year (from \$145 to \$174 a week)
(E) Between \$10,000 and \$19,999 a year (from \$175 to \$301 a week)
(F) Between \$10,500 and \$11,999 a year (from \$202 to \$230 a week)
(G) Between \$12,000 and \$13,499 a year (from \$231 to \$259 a week)
(H) Between \$13,500 and \$14,999 a year (from \$270 to \$298 a week)
(I) Between \$15,000 and \$16,499 a year (from \$320 to \$317 a week)
(J) Between \$16,500 and \$17,999 a year (from \$318 to \$346 a week)
(K) Between \$18,000 and \$19,999 a year (from \$347 to \$355 a week)
(L) Between \$20,000 and \$21,999 a year
(M) Between \$22,000 and \$23,999 a year
(N) Between \$24,000 and \$25,999 a year
(O) Between \$26,000 and \$27,999 a year
(P) Between \$28,000 and \$29,999 a year
(Q) More than \$30,000 a year

44. You may want to receive help outside regular course work from the college you plan to attend. If so, blacken the letter for each area in which you may want help.

(A) Counseling about educational plans and opportunities
(B) Counseling about vocational/career plans and opportunities
(C) Improving mathematical ability
(D) Finding part-time work
(E) Counseling about personal problems
(F) Increasing reading ability
(G) Developing good study habits
(H) Improving writing ability

Questions 45 and 46 concern your interests in extra-curricular activities in high school and your plans to participate in college.

45. Blacken the letter for each activity in which you participated while in high school.

(A) Athletics—interscholastic, intramural, or community
(B) Ethnic or racial activities or organizations
(C) Journalism, debating, or dramatic activities
(D) Art, music, or dance
(E) Preprofessional or departmental clubs—for example, Future Teachers of America, American Society of Civil Engineers
(F) Religious activities or organizations
(G) Social clubs or community organizations
(H) Student government

46. Using the list in question 45, blacken the letter for each activity in which you plan to participate in college.

Questions 47 through 60 concern how you feel you compare with other people your own age in certain areas of ability. For each field, blacken the letter

(A) if you feel you are in the highest 1 percent in that area of ability
(B) if you feel you are in the highest 10 percent in that area of ability
(C) if you feel you are above average in that area of ability
(D) if you feel you are average in that area of ability
(E) if you feel you are below average in that area of ability

47. Acting ability

48. Artistic ability

49. Athletic ability

50. Creative writing

51. Getting along with others

52. Leadership ability

53. Mathematical ability

54. Mechanical ability

55. Musical ability

56. Organizing work

57. Sales ability

58. Scientific ability

59. Spoken expression

60. Written expression

61. From the list on the next page, choose the field that would be your first choice for your college curriculum. Write the number of that field and blacken the corresponding oval.

62. From the same list, choose the field that would be your second choice. Write the number of that field and blacken the corresponding oval.

63. From the same list, choose the career field that you think you will pursue after college. Write the number of that field and blacken the corresponding oval. If your exact choice does not appear, select the one most closely related.

School Board of Manatee County

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SUPERINTENDENT OF SCHOOLS

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April 10, 1981

Dear High School Alumnus,

With the support of the Manatee County School Board, the Florida Educational Research and Development Council, the College Entrance Examination Board, and consultants from the University of South Florida, a study of changes in score patterns on the Scholastic Aptitude Test is being conducted in Manatee County.

During the four-year period of 1976-1979, significant gains in average scores of Manatee County students were observed. Because you took the SAT during that time, we seek your help in better understanding those changes, which represent a departure from a national pattern of declining SAT scores.

A brief questionnaire, an answer sheet, and a stamped, self-addressed envelope have been included for your convenience. Although the answer sheet has been coded with a sequence number, school, and year, the information you provide will be kept strictly confidential. Generalizations will be drawn from a compilation of all participants' responses, but no personal or individual data will be revealed.

Please take a few minutes to answer the questions. Then return your answer sheet as quickly as possible so that the study can be completed. Your help is appreciated.

Sincerely,

Nancy W. Bullen

Nancy W. Bullen
Supervisor of Language Arts

NB/es

QUESTIONNAIRE
for

Manatee County High School Alumni and Scholastic Aptitude Test-takers

This questionnaire is part of a study of SAT score changes in Manatee County. Answer it as completely and accurately as you can by marking the accompanying answer sheet. Your responses will remain confidential. PLEASE DO NOT WRITE YOUR NAME ON THE ANSWER SHEET.

1. Sex:
 - A) male
 - B) female
2. Ethnic or racial background:
 - A) White or Caucasian
 - B) Black, Afro-American or Negro
 - C) Oriental, Asian-American
 - D) Spanish-American
 - E) other
3. Overall high school grade point average:
 - A) 3.5 or higher
 - B) 3.0 - 3.4
 - C) 2.5 - 2.9
 - D) 2.0 - 2.4
 - E) 1.9 or below
4. Class rank:
 - A) highest tenth
 - B) second tenth
 - C) second fifth
 - D) middle fifth
 - E) below middle fifth
5. Number of times the Scholastic Aptitude Test was taken:
 - A) one
 - B) two
 - C) three
 - D) more than three
6. Most recent SAT Verbal score:
 - A) 700 - 800
 - B) 600 - 699
 - C) 500 - 599
 - D) 400 - 499
 - E) 300 - 399
7. Most recent SAT Quantitative score:
 - A) 700 - 800
 - B) 600 - 699
 - C) 500 - 599
 - D) 400 - 499
 - E) 300 - 399

From your personal experiences while in high school, to what degree might the following factors and conditions have positively affected your performance on the SAT?

Mark A if the condition had a major positive effect on your score.

Mark B if the condition had some positive effect on your score.

Mark C if the condition had no effect on your score.

Mark D if the condition is not applicable.

- | | |
|---|-------------|
| 8. Number of English courses taken in high school | A) B) C) D) |
| 9. Course content in English classes | A) B) C) D) |
| 10. Writing assignments in English classes | A) B) C) D) |
| 11. Literature study in English classes | A) B) C) D) |
| 12. Vocabulary study in English classes | A) B) C) D) |
| 13. Study of test-taking strategies in a course in high school | A) B) C) D) |
| 14. Experience in developmental reading programs or reading labs | A) B) C) D) |
| 15. Number of math courses taken | A) B) C) D) |
| 16. Course content in math classes | A) B) C) D) |
| 17. Number of science courses taken | A) B) C) D) |
| 18. Number of social studies courses taken | A) B) C) D) |
| 19. Number of foreign language courses taken | A) B) C) D) |
| 20. Emphasis on college preparatory course work | A) B) C) D) |
| 21. Participation in Advanced Placement courses | A) B) C) D) |
| 22. Participation in "honors" or "advanced" courses | A) B) C) D) |
| 23. Participation in college dual-enrollment program | A) B) C) D) |
| 24. Participation in an independent study program | A) B) C) D) |
| 25. Personal motivation to score well on standardized tests, college entrance exams | A) B) C) D) |
| 26. Personal motivation for academic achievement in school | A) B) C) D) |
| 27. Participation in commercial or college-sponsored test preparation courses | A) B) C) D) |
| 28. Use of commercially-prepared SAT test preparation guides, texts | A) B) C) D) |
| 29. Prior standardized test-taking experiences (PSAT, ACT, Advanced Placement exam, etc.) | A) B) C) D) |
| 30. Personal expectations of performance in school | A) B) C) D) |
| 31. Parents' expectations of performance in school | A) B) C) D) |
| 32. Independent, individual study in areas of interest | A) B) C) D) |
| 33. Regular habits of reading often and widely | A) B) C) D) |

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